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Proposed Spectrum Provisions in the House Reconciliation Bill (H.R. 1)

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SUMMARY

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June 4, 2025

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Proposed Spectrum Provisions in the House Reconciliation Bill (H.R. 1)

On May 22, 2025, the House voted to approve H.R. 1, a reconciliation bill that compiled provisions from 11 House committees, pursuant to directives in H.Con.Res. 14. The Committee on Energy and Commerce ("the Committee") was instructed to submit changes in laws within its jurisdiction to reduce the deficit by not less than $880 billion for the period from fiscal year (FY) 2025 through FY2034. As part of its package, the Committee submitted provisions requiring the identification and auction of spectrum—the radio waves that enable wireless communication. The provisions would

- restore the Federal Communications Commission's (FCC's) general auction authority, which expired on March 9, 2023, extending it through September 30, 2034;
- direct the Assistant Secretary of Commerce for Communications and Information, who leads the National Telecommunications and Information Administration (NTIA), and the FCC to identify within two years of enactment 600 megahertz of spectrum between 1.3 gigahertz (GHz) and 10 GHz—excluding the 3.1-3.45 GHz band and 6 GHz band—and make it available for exclusive, licensed use for mobile broadband services, fixed broadband services, mobile and fixed broadband services, or a combination thereof; and
- direct the FCC to auction 200 of the 600 megahertz of the identified spectrum within three years of enactment, and the remaining spectrum within six years of enactment.

The Congressional Budget Office estimates the spectrum auctions would generate $88 billion between FY2025 and FY2034.

Proponents of H.R. 1 assert that it achieves several goals: It reinstates the FCC's lapsed auction authority; makes additional spectrum available for commercial use; excludes a particularly contested band—the 3.1-3.45 GHz band (also called the lower 3 GHz band)—from reallocation and auction; and generates offsetting receipts.

Some Members have raised concerns about the spectrum provisions, the amount of spectrum to be reallocated for exclusive commercial use, the potential impact on federal agencies and systems, and the extent of coordination with federal agencies when reallocating spectrum to ensure federal systems and capabilities are protected, especially those used for national defense. These Members assert that spectrum use is increasing for commercial *and* federal users, including for DOD, and that future federal spectrum needs should be considered. Members express concerns about future plans for the lower 3 GHz band, a band used heavily for DOD radar systems and excluded from auction in H.R. 1. They urge greater coordination among agencies on spectrum decisions to both increase access to spectrum and advance and protect U.S. capabilities.

Some Members have pressed for future auction proceeds to be allocated for public interest programs, such as improvements to 911 systems and investments in spectrum sharing research that could maximize spectrum use. In H.R. 1, proceeds would be used for FCC costs of developing and conducting the auction and for federal agency relocation and sharing costs associated with the auction(s). Remaining funds would be deposited in the U.S. Treasury, and would be available for deficit reduction, unless otherwise specified by Congress.

H.R. 1 has passed the House. The Senate may adopt or amend the language in H.R. 1. The Senate could increase the amount of spectrum for reallocation, expand the range of spectrum that can be considered, or remove certain bands that have been exempted; this could enable NTIA and the FCC to reach the spectrum goals in H.R. 1, and potentially generate additional proceeds, but could have impacts on incumbent users, including federal agencies, using these spectrum bands. The Senate could decrease the amount of spectrum to be reallocated or it could exempt additional bands from reallocation. Doing so could maintain federal use of certain bands, but it may not support existing and future needs of commercial service providers and their customers. It may also affect innovation, economic gains, and U.S. leadership in wireless communications; and it could limit proceeds from auctions foregone.

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Introduction

On May 22, 2025, the House voted to approve H.R. 1, a reconciliation bill that compiled provisions from 11 House committees, pursuant to directives in H.Con.Res. 14. The Committee on Energy and Commerce ("the Committee") was instructed to submit changes in laws within its jurisdiction to reduce the deficit by not less than $880 billion for the period from fiscal year (FY) 2025 through FY2034. As part of its package, the Committee included provisions related to spectrum—the radio waves that enable wireless communications. The spectrum provisions would require the identification of radio spectrum for broadband services and auction of such spectrum. The Congressional Budget Office (CBO) estimates that the provisions would decrease direct spending by $88 billion over that period.[1]

This report describes the proposed spectrum provisions in H.R. 1 as passed by the House. It presents several potential areas of interest for Congress regarding spectrum targeted for reallocation and bands excluded from consideration;[2] agency roles in the identification and reallocation of spectrum; the extension of the Federal Communications Commission's (FCC's) spectrum auction authority (which expired on March 9, 2023);[3] and allocation of estimated proceeds from the planned spectrum auctions.

Spectrum Provisions in the Reconciliation Bill

On April 10, 2025, the House and Senate agreed to H.Con.Res. 14, the Concurrent Resolution on the Budget for Fiscal Year 2025. Title I established budget levels for FY2025 through FY2034. Title II contained reconciliation instructions to 11 House and 10 Senate committees, directing each committee to submit changes in laws within their jurisdiction that would decrease the deficit by amounts specified in H.Con.Res. 14.

Per H.Con.Res. 14, the Energy and Commerce Committee was directed to submit changes in laws within its jurisdiction that would reduce the deficit by not less than $880 billion for the period covering FY2025 to FY2034. The Committee approved text on May 14, 2025, and submitted it to the House Committee on the Budget, which assembled and compiled the committee bills into a single bill.[4] The House Budget Committee initially voted against the package on May 16, 2025.[5]

[1] Congressional Budget Office (CBO), "Table 4. Title IV, House Committee on Energy and Commerce," in *Estimated Budgetary Effects of a Bill to Provide for Reconciliation Pursuant to Title II of H.Con.Res. 14, the One Big Beautiful Bill Act: Cost Estimate as Ordered Reported by the House Committee on the Budget on May 18, 2025*, May 20, 2025, https://www.cbo.gov/publication/61420.

[2] Reallocation could mean changing the use of a spectrum band from solely federal use to shared federal and nonfederal use (under certain terms and agreements and using spectrum sharing systems); reconfiguring a band to compress federal or commercial users in a smaller segment of the band, freeing up spectrum for other uses; or relocating incumbent users from the band to another band that has comparable (but not exactly the same) coverage and propagation characteristics. (*Propagation* refers to how well the radio waves move from one point to another.)

[3] For more information, see CRS Report R47578, *The Federal Communications Commission's Spectrum Auction Authority: History and Options for Reinstatement*, by Patricia Moloney Figliola and Jill C. Gallagher.

[4] House Energy and Commerce Committee, "Chairman Guthrie Celebrates Committee Passage of Reconciliation Text to Put Americans First," press release, May 14, 2025, https://energycommerce.house.gov/posts/chairman-guthrie-celebrates-committee-passage-of-reconciliation-text-to-put-americans-first.

[5] Jennifer Scholtes and Meredith Lee Hill, "House Budget Panel Rejects GOP Megabill Amid Conservative Opposition," *Politico*, May 16, 2025, https://www.politico.com/news/2025/05/16/house-budget-panel-approves-gop-megabill-for-floor-action-as-leaders-mull-tweaks-00353326.

It approved a modified package on May 18, 2025, and reported the measure to the House on May 20, 2025.[6] On May 22, 2025, the House passed H.R. 1 by a vote of 215-214.

In H.R. 1, Title IV, Subtitle C—Communications, Part 1, contains provisions related to spectrum auctions. Section 43101(a) requires that, not later than two years after enactment of the law, the Assistant Secretary of Commerce for Communications and Information, who leads the National Telecommunications and Information Administration (NTIA), the executive branch agency responsible for managing federal agency spectrum use, and the FCC, the independent agency responsible for managing nonfederal (e.g., commercial, state, and local) spectrum use,

- identify at least 600 megahertz[7] of spectrum between 1.3 gigahertz (GHz) and 10 GHz that is currently allocated for (1) federal use, (2) nonfederal use, or (3) shared federal and nonfederal use, *excluding* the 3.1-3.45 GHz band and the 5.925-7.125 GHz band; and
- reallocate this spectrum for exclusive, licensed use for mobile broadband services, fixed broadband services, mobile and fixed broadband services, or a combination thereof.

Section 43101(b)(2)(A) requires that, no later than three years after enactment, the FCC complete one or more systems of competitive bidding (i.e., auctions) for not less than 200 megahertz of spectrum. Section 43101(b)(2)(B) requires that, no later than six years after enactment, the FCC complete one or more auctions for the remaining spectrum. Section 43101(d) reinstates the FCC's general spectrum auction authority, granting the FCC authority to conduct auctions of any band through September 30, 2034.[8]

Policy Considerations for Congress

Debate on H.R. 1 has focused on several issues, including

- how to balance making spectrum available for commercial use while protecting federal agency use;
- which spectrum bands to target for and exclude from reallocation;
- agency roles and interagency coordination in identifying spectrum for reallocation and auction;
- protections for federal spectrum use; and
- allocation of proceeds from future spectrum auctions.

Below are selected issues for consideration as Congress deliberates on the reconciliation bill.

[6] Emily Brooks, Mike Lillis, and Mychael Schnell, "Republicans Advance Trump's 'Big, Beautiful Bill' in Unusual Late-Night Vote," *The Hill*, May 18, 2025.

[7] In this report, the term *megahertz* is spelled out when it refers to bandwidth—the size of a frequency band. The abbreviation MHz (and GHz for gigahertz) is used to indicate a specific frequency or range of frequencies. For example, the lower 3 GHz band contains the range of frequencies from 3.1-3.45 GHz (it is sometimes represented as 3100-3450 MHz). This band has a bandwidth of 350 megahertz.

[8] Federal Communications Commission (FCC) spectrum auction authority is codified at 47 U.S.C. §309(j).

Making Spectrum Available for Commercial Use

H.R. 1 mandates that NTIA and the FCC shall identify 600 megahertz of spectrum for reallocation from (1) federal use, (2) nonfederal use, or (3) shared federal and nonfederal use to exclusive licensed use for broadband services.

Congress has sought to make spectrum available for commercial use while protecting existing federal agency spectrum holdings and use, including Department of Defense (DOD) operations. In a February 2025 hearing on spectrum policy and reconciliation held by the Senate Commerce, Science, and Transportation Committee, some Senators discussed that with increasing use of wireless technologies, demand for spectrum—from both federal and nonfederal users—has increased.[9] As much of the radio spectrum is already allocated for specific uses, making new spectrum available to meet demands from existing users or for new technologies may affect incumbent users, their systems, and their operations.

Identifying, reallocating, and auctioning spectrum for commercial use has a financial value. Spectrum auctions have yielded over $233 billion in receipts for the U.S. government since they began in 1994.[10] Some Members urge expediency in identifying spectrum for auction, while also recognizing the need to protect federal, particularly military, operations.[11] Others note that pursuing expediency without planning and coordination has led to disputes over the use and allocation of spectrum,[12] particularly between federal agency users and the FCC.[13] Some Members urge careful planning, studies, and investment in spectrum research to assess current use and future needs and to determine the best way to optimize spectrum use to make spectrum available for new commercial uses (i.e., reallocation or sharing), while also protecting federal agency operations, especially military needs and operations.[14]

Some Members assert that federal agencies, particularly DOD, are holding a large amount of spectrum and are not using it efficiently. They urge assessment of federal holdings and actual federal use to identify opportunities for sharing or reallocation.[15] S. 794, introduced on February 27, 2025, would require NTIA to audit federal holdings and use and prepare a report for Congress. Some experts argue that preserving DOD access to an array of spectrum bands contributes to national security, as it allows the agency flexibility and a level of nimbleness to

[9] U.S. Congress, Senate Commerce, Science, and Transportation Committee, *America Offline? How Spectrum Auction Delays Give China the Edge and Cost Us Jobs*, hearing, 119th Cong., 1st sess., February 19, 2025.

[10] Roger Entner, "The 4G Decade—Quantifying the Benefits," *Recon Analytics*, July 29, 2020, https://reconanalytics.com/the-4g-decade-quantifying-the-benefits/.

[11] U.S. Congress, Senate Commerce, Science, and Transportation Committee, *America Offline? How Spectrum Auction Delays Give China the Edge and Cost Us Jobs*, hearing, 119th Cong., 1st sess., February 19, 2025. (For example, see opening statement from Sen. Ted Cruz, Chairman.)

[12] For examples of recent disputes, see CRS In Focus IF12046, *National Spectrum Policy: Interference Issues in the 5G Context*, by Ling Zhu.

[13] U.S. Congress, Senate Commerce, Science, and Transportation Committee, *America Offline? How Spectrum Auction Delays Give China the Edge and Cost Us Jobs*, hearing, 119th Cong., 1st sess., February 19, 2025. (For example, see opening statement from Sen. Maria Cantwell, Ranking Member of the Committee.)

[14] U.S. Congress, Senate Commerce, Science, and Transportation Committee, *America Offline? How Spectrum Auction Delays Give China the Edge and Cost Us Jobs*, hearing, 119th Cong., 1st sess., February 19, 2025. (See, for example, opening statements from Sen. Maria Cantwell, Ranking Member of the Committee, and Sen. Deb Fischer.)

[15] U.S. Congress, Senate Commerce, Science, and Transportation Committee, *America Offline? How Spectrum Auction Delays Give China the Edge and Cost Us Jobs*, hearing, 119th Cong., 1st sess., February 19, 2025. (See, for example, statements from Sen. Marsha Blackburn discussing "spectrum squatting" by federal agencies.)

operate across multiple bands—a capability DOD deems essential in electronic warfare.[16] As such, DOD supports increased use of advanced spectrum sharing capabilities to accommodate multiple uses.

With the emergence of wireless technologies (e.g., cellular, Wi-Fi, satellite), demand for spectrum has increased. In 2010, the FCC developed a national broadband plan, which recommended the U.S. government allocate 500 megahertz of spectrum for mobile broadband use.[17] Since then, NTIA and the FCC have worked together to study, identify, and reallocate spectrum for broadband use. In its 2023 *Annual Report on the Status of Spectrum Repurposing and Other Initiatives* (hereinafter *Repurposing Report*), NTIA reported that since it began reporting on federal spectrum reallocation in 2007, 15,214 megahertz of federal spectrum has been repurposed for commercial use, including 6,310.5 megahertz of licensed spectrum and 8,903.5 megahertz of unlicensed spectrum, with an additional 7,235 megahertz under study.[18] Further, in November 2023, NTIA released a *National Spectrum Strategy* (NSS) that identifies five new bands totaling 2,786 megahertz for near-term study to determine the suitability of repurposing to meet commercial needs.[19] According to the *NSS Implementation Plan*, published in March 2024, these studies are underway.[20]

H.R. 1 directs the FCC and NTIA to identify 600 megahertz of spectrum between 1.3 GHz and 10 GHz for exclusive licensed use for mobile broadband services; it excludes the 3.1-3.45 GHz band (also known as the lower 3 GHz band) and the 5.925-7.125 GHz band (also known as the 6 GHz band) from reallocation and auction. This new spectrum for commercial broadband use would be in addition to commercial bands previously reallocated by the FCC for mobile broadband use.[21]

A policy challenge is balancing competing needs—making spectrum available for commercial use—to spur innovation and economic growth and to maintain U.S. leadership in the global telecommunications market—while also protecting existing federal agency operations and spectrum for future federal uses. Members generally support the optimization of spectrum to enable new technologies and uses, as well as the protection of federal systems used for national security purposes.[22] Some Members have called for an assessment of spectrum use by federal users to assess existing and future spectrum needs before reallocation and auction.[23] Auctions have been a means to make spectrum available for commercial use and to generate revenues for

[16] U.S. Congress, Senate Commerce, Science, and Transportation Committee, *America Offline? How Spectrum Auction Delays Give China the Edge and Cost Us Jobs*, hearing, 119th Cong., 1st sess., February 19, 2025. (See, for example, witness statements from Bryan Clark, Senior Fellow and Director, Center for Defense Concepts and Technology, Hudson Institute.)

[17] FCC, *Connecting America: The National Broadband Plan*, March 2010, https://transition.fcc.gov/national-broadband-plan/national-broadband-plan.pdf.

[18] National Telecommunications and Information Administration (NTIA), *Annual Report on the Status of Spectrum Repurposing and Other Initiatives*, March 2023, p. 14, https://www.ntia.gov/sites/default/files/publications/annual_spectrum_repurposing_initiatives_report_final.pdf.

[19] NTIA, *National Spectrum Strategy*, November 2023, p. 3, https://www.ntia.gov/sites/default/files/publications/national_spectrum_strategy_final.pdf.

[20] NTIA, *National Spectrum Strategy Implementation Plan*, March 12, 2024, https://www.ntia.gov/sites/default/files/publications/national-spectrum-strategy-implementation-plan.pdf.

[21] See **Appendix** for spectrum that the FCC has allocated for commercial mobile use.

[22] U.S. Congress, Senate Commerce, Science, and Transportation Committee, *America Offline? How Spectrum Auction Delays Give China the Edge and Cost Us Jobs*, hearing, 119th Cong., 1st sess., February 19, 2025. (See, for example, opening statement from Sen. Maria Cantwell, Ranking Member of the Committee, and Sen. Deb Fischer.)

[23] U.S. Congress, Senate Commerce, Science, and Transportation Committee, *America Offline? How Spectrum Auction Delays Give China the Edge and Cost Us Jobs*, hearing, 119th Cong., 1st sess., February 19, 2025. (See, for example, statements from Sen. Marsha Blackburn.)

the U.S. government. These revenues may come directly, from the auctions themselves, or indirectly, via economic gains from the development and use of new wireless innovations and services.[24]

As Congress evaluates spectrum auction authority language in H.R. 1, Members may seek to

- assess supply and demand for spectrum, including past reallocations and actual spectrum holdings and use by both commercial and federal users.
- identify specific bands for auction, taking into account spectrum studies underway or nearly complete, or bands identified internationally for commercial mobile use. While this may expedite the reallocation and auction process, it would remove the authority of NTIA and the FCC—the two agencies with spectrum expertise—to identify bands for reallocation and auction for commercial broadband use.
- expand the amount of spectrum targeted for reallocation and auction. This may increase revenues raised through such auctions, but it may affect existing users, including federal agencies performing mission-critical functions, if they have to relocate.
- expand the range of spectrum NTIA and the FCC may consider for reallocation and auction. This may help the agencies meet the targeted amounts specified in H.R. 1, but it may not result in the most optimal bands being made available for commercial wireless services and may affect auction receipts.
- reduce the amount of spectrum targeted for reallocation. This may protect existing users, but it may not provide the spectrum needed to meet current or future demands from customers—including individuals, businesses, and government agencies—and it may affect auction receipts.
- remove bands excluded in H.R. 1. Removing the 3.1 GHz and 6 GHz bands from exclusion would provide flexibility to align U.S. use with international spectrum allocations and potentially help NTIA and the FCC to reach the spectrum targets and expected auction proceeds targets set in the bill. However, allowing the 3.1 GHz band to be reallocated and auctioned for exclusive commercial use likely would require changes to critical military systems and national security capabilities with commensurate costs, which may affect the amount of auction proceeds available for deficit reduction. Allowing the 6 GHz band to be reallocated and auctioned may potentially affect emerging wireless technologies using the 6 GHz band. It may also affect U.S. wireless technology manufacturers and their willingness to invest in wireless technologies in the future, and it may affect economic gains from industry investment in the band.
- add additional bands to the exclusion list. This may protect use by certain federal or commercial systems, but it may also limit the spectrum available for exclusive licensed use and potential proceeds from their auction.

In assessing such options, Congress may consider the impact of reallocation and auctions on economic and national security, and on potential proceeds attached to the various options.

[24] U.S. Congress, Senate Commerce, Science, and Transportation Committee, *America Offline? How Spectrum Auction Delays Give China the Edge and Cost Us Jobs*, hearing, 119th Cong., 1st sess., February 19, 2025. (See, for example, multiple Member statements urging reinstatement of auction authority and making spectrum available.)

Interagency Coordination on Spectrum

H.R. 1 mandates that NTIA and the FCC identify spectrum for reallocation. NTIA and the FCC have statutory roles and responsibilities to conduct joint spectrum planning and to identify spectrum for reallocation and auction.[25] Agency roles and spectrum coordination processes are further defined in a 2022 Memorandum of Understanding (MOU).[26]

As wireless technology and data use has increased, demand for spectrum has increased, as have spectrum disputes. Recent disputes have centered on the reallocation of spectrum for fifth-generation (5G) cellular technologies.[27] Congress has conducted hearings and heard from agency officials on spectrum needs for 5G and other uses, including federal agency use,[28] as well as interagency disputes over (1) NTIA representation of federal spectrum needs and concerns in its discussions with the FCC and (2) federal agency concerns with FCC decisions to reallocate spectrum to commercial use.[29]

Some experts have called for a bottom-up and top-down approach to spectrum management and coordination, where U.S. spectrum policy and identification of new bands for auction is informed by technical input from agency engineers, after studies of systems and approaches, with the approval of senior officials from each agency (bottom-up), and by White House oversight (top-down).[30] Some stakeholders argue that a more coordinated approach could lead to a more unified U.S. position on spectrum in the international arena and could put the United States in a position to lead and influence global spectrum policy use.[31]

Other experts assert that technology is the solution; they say that technology solutions could mitigate those disputes. They therefore advocate for greater investment in spectrum sharing technologies.[32]

Some Members assert that because the FCC acted rapidly to move spectrum to auction for 5G services, some federal agency concerns were not addressed.[33] In at least one case, Section 90008

[25] 47 U.S.C. §922.

[26] "Memorandum of Understanding Between the Federal Communications Commission and the National Telecommunications and Information Administration," August 1, 2022, https://www.ntia.gov/sites/default/files/publications/ntia-fcc-spectrum_mou-8.2022.pdf.

[27] CRS In Focus IF12046, *National Spectrum Policy: Interference Issues in the 5G Context*, by Ling Zhu; see also CRS In Focus IF12028, *Aviation Concerns Regarding the Rollout of 5G Wireless Telecommunications Networks*, by Bart Elias; and CRS Report R46416, *Forecasting Tropical Cyclones: Overview and Issues for Congress*, by Eva Lipiec.

[28] U.S. Congress, House Science, Space, and Technology Committee, *Spectrum Needs for Observations in Earth and Space Sciences*, hearing, 117th Cong., 1st sess., July 20, 2021.

[29] For example, see comments of the Department of Defense (DOD) and DOD stakeholders at U.S. Congress, Senate Armed Services Committee, *Department of Defense Spectrum Policy and the Impact of the Federal Communications Commission's Ligado Decision on National Security*, hearing, 116th Cong., 2nd sess., May 6, 2020.

[30] U.S. Congress, Senate Commerce, Science, and Transportation Committee, *America Offline? How Spectrum Auction Delays Give China the Edge and Cost Us Jobs*, hearing, 119th Cong., 1st sess., February 19, 2025. (See questions from Sen. Ted Budd and testimony of Matt Pearl, Director, Strategic Technologies, Center for Strategic and International Studies.)

[31] U.S. Congress, Senate Commerce, Science, and Transportation Committee, *America Offline? How Spectrum Auction Delays Give China the Edge and Cost Us Jobs*, hearing, 119th Cong., 1st sess., February 19, 2025. (See comments from Sen. Marsha Blackburn.)

[32] U.S. Congress, Senate Commerce, Science, and Transportation Committee, *America Offline? How Spectrum Auction Delays Give China the Edge and Cost Us Jobs*, hearing, 119th Cong., 1st sess., February 19, 2025. (See testimony of Charles Baylis, Director, SMART Hub, and Professor of Electrical and Computer Engineering, Baylor University.)

[33] U.S. Congress, Senate Commerce, Science, and Transportation Committee, *America Offline? How Spectrum Auction*
(continued...)

of the IIJA, Congress mandated an alternative process for identification and reallocation of spectrum to ensure DOD equities were represented and protected.

In Section 90008 of the Infrastructure Investment and Job Act (IIJA; P.L. 117-58), Congress directed the Secretary of Commerce, in coordination with the Secretary of Defense and the Director of the White House Office of Science and Technology Policy (OSTP), to identify frequencies in the 3.1-3.45 GHz band for shared federal and nonfederal commercial licensed use. The band is used by DOD for radar systems for, among other things, detection of aircraft and missiles. P.L. 117-58 stipulated that the Secretary of Commerce may identify frequencies for reallocation only if the Secretary of Defense determines that sharing frequencies in the 3.1-3.45 GHz band would not impact primary military use. Once this process is complete, the Secretary of Commerce is to submit those frequencies to the President and to the FCC. This process deviated from the traditional NTIA and FCC coordination approach, in which NTIA represents federal agency needs in its discussions with the FCC, and the two agencies work together to identify frequencies for reallocation.

Some Members have stated that there are existing coordination processes in place for identifying spectrum for reallocation and resolving spectrum disputes, thus reinforcing the roles of NTIA and the FCC as the lead spectrum management agencies.[34] H.R. 1 adopts this traditional coordination approach—directing NTIA and the FCC (with no other agencies named) to identify 600 megahertz of spectrum for exclusive licensed use for broadband services.[35]

Other Members have called for clarity and refinement in interagency coordination processes to ensure agency concerns are addressed before spectrum is identified, reallocated, and auctioned.[36] In the 119th Congress, several bills have been introduced that address clarifying and specifying NTIA and FCC roles in spectrum management, such as

- H.R. 2482, which passed the House on April 28, 2025, and which would require that "the views of the executive branch on matters presented to the Commission are consistent with [47 U.S.C. §901(a)], appropriately coordinated, and reflective of executive branch policy";
- H.R. 2171, which would improve coordination between NTIA and the FCC by requiring timelines for information exchanges on spectrum decisions, establishing a process for resolving spectrum disputes, and requiring regular updates to the MOU; and

Delays Give China the Edge and Cost Us Jobs, hearing, 119th Cong., 1st sess., February 19, 2025. (See opening statement from Sen. Maria Cantwell, Ranking Member of the Committee.) See also U.S. Congress, House Committee on Science, Space, and Technology, *Spectrum Needs for Observations in Earth and Space Sciences*, hearing, 117th Cong., 1st sess., July 20, 2021 (pertaining to the disputes on the 24 GHz band and other bands, and noting, "Opportunities remain to improve the interagency process and better consider the needs of incumbent federal users in spectrum management in order to reach consensus").

[34] U.S. Congress, Senate Commerce, Science, and Transportation Committee, *America Offline? How Spectrum Auction Delays Give China the Edge and Cost Us Jobs*, hearing, 119th Cong., 1st sess., February 19, 2025. (See, for example, statements from Sens. Eric Schmitt and John Curtis.)

[35] H.R. 1 states, "Nothing in this subsection may be construed to change the respective authorities of the Assistant Secretary and the Commission with respect to spectrum allocated for Federal use, non-Federal use, or shared Federal and non-Federal use."

[36] U.S. Congress, Senate Commerce, Science, and Transportation Committee, *America Offline? How Spectrum Auction Delays Give China the Edge and Cost Us Jobs*, hearing, 119th Cong., 1st sess., February 19, 2025. (See, for example, statements from Sens. Maria Cantwell, Deb Fischer, Marsha Blackburn, and John Curtis.)

- H.R. 651, which would direct NTIA, in consultation with the FCC (and no other agencies), to identify 2,500 megahertz of spectrum for nonfederal use, shared use, or a combination thereof.

Members may be interested in adding provisions to H.R. 1 that intend to enhance coordination between agencies (e.g., FCC and NTIA, NTIA and other federal agencies); that allow agency input into the process of identifying spectrum for reallocation and auction; that name specific agencies that should be consulted during the process; or that give agencies (e.g., DOD) certain roles and rights to weigh in on spectrum decisions.

In the Senate, reconciliation legislation is restricted by the Senate's "Byrd rule," which generally prohibits the inclusion of material considered "extraneous" to the purpose of a reconciliation bill. *Extraneous*, as defined in the Budget Act, comprises provisions that (1) do not produce a change in outlays or revenues; (2) produce an outlay increase or revenue decrease when the instructed committee is not in compliance with its instructions; (3) are outside the jurisdiction of the committee that submitted the title or provision for inclusion in the reconciliation measure; (4) produce a change in outlays or revenues that is merely incidental to the nonbudgetary components of the provision; (5) would increase the deficit for a fiscal year beyond the period covered by the reconciliation measure; or (6) recommend changes in Social Security.[37]

Identification of 600 Megahertz of Spectrum for Broadband Use

H.R. 1 directs NTIA and the FCC to identify 600 megahertz of spectrum between 1.3 GHz and 10 GHz (excluding the lower 3 GHz and 6 GHz bands) for exclusive commercial licensed use for

- mobile broadband services (e.g., cellular);
- fixed broadband services (e.g., fixed wireless to the home, where internet signals are delivered wirelessly to the home);
- mobile and fixed broadband services; or
- a combination thereof.[38]

H.R. 1 does not name specific bands for reallocation to exclusive commercial use, but sets a required *amount* of spectrum for reallocation (i.e., 600 megahertz) from (1) federal, (2) nonfederal, or (3) shared federal and nonfederal use for commercial use, and directs NTIA and the FCC to identify bands for reallocation. The amount proposed for reallocation in H.R. 1 is less than that proposed for commercial use in a spectrum pipeline bill introduced in the House in the 119th Congress. Specifically, H.R. 651 would direct NTIA, in consultation with the FCC, to identify 2,500 megahertz of spectrum for reallocation from federal use or shared federal and nonfederal use to (1) nonfederal use, (2) shared federal and nonfederal use, or (3) a combination thereof, including not less than 1,250 megahertz for full-power commercial licensed use cases.[39]

[37] For more information, see CRS Report R48444, *The Reconciliation Process: Frequently Asked Questions*, by Tori Gorman; and CRS Report RL30862, *The Budget Reconciliation Process: The Senate's "Byrd Rule"*, by Bill Heniff Jr.

[38] For an industry explanation of fixed wireless, see Nokia, "Fixed Wireless Access Explained" (blog post), June 28, 2023, https://www.nokia.com/fixed-networks/fastmile-fwa/fixed-wireless-access-explained/.

[39] H.R. 651 calls for reallocation of at least 1,250 megahertz for "full-power commercial licensed use cases." Full-power use allows licensees to transmit at the maximum allowed power levels within a specific spectrum band; commercial wireless industry groups say this enables a more reliable and secure foundation for wireless networks. Transmitting at maximum power levels could cause interference with other users in the band or in adjacent bands; thus, wireless industry groups advocate for full-power, *exclusive use* licenses, which give licensees the sole right to use the assigned spectrum within a defined geographic area. CTIA, "U.S. Wireless Consumer Data Use, Industry Investment Again Hit Record Highs, CTIA Annual Survey Finds," press release, July 25, 2023, https://www.ctia.org/news/u-s-wireless-consumer-data-use-industry-investment-again-hit-record-highs-ctia-annual-survey-finds.

While H.R. 651 calls for the identification of more spectrum, it does not specify exclusive use, which give licensees the sole right to use the assigned spectrum within a defined geographic area and typically requires that incumbents be cleared.

Congress may choose to increase the amount of spectrum made available in the bill, which may open new bands for commercial use and yield additional auction proceeds. Congress could also decrease the amount of spectrum made available, which might limit effects on federal spectrum use, but may fall short of meeting commercial needs and reduce potential proceeds from future spectrum auctions. Congress could also allow for identification of spectrum for spectrum sharing among commercial and federal users, rather than solely for exclusive use. This could open bands for commercial use while also permitting federal users to remain in the band, but may affect commercial operations in the band and auction proceeds.[40]

If Congress decided to add spectrum to the bill or specify certain bands for auction, it may consider bands already under study, such as those named in the NSS. The NSS identifies five new spectrum bands, totaling 2,786 megahertz, for near-term study to assess the suitability of repurposing for commercial use. Among the bands identified are the

- lower 3 GHz band (3.1-3.45 GHz), a 350-megahertz band of spectrum (which is excluded from reallocation in H.R. 1);
- 5 GHz band (5.030-5.091 GHz), a 61-megahertz band of spectrum;
- 7-8 GHz band (7.125-8.4 GHz), a 1,275-megahertz band of spectrum;
- 18 GHz band (18.1-18.6 GHz), a 500-megahertz band of spectrum; and
- 37 GHz band (37.0-37.6 GHz), a 600-megahertz band of spectrum.

H.R. 1 excludes the lower 3 GHz band and the 6 GHz band. A discussion of the excluded bands is provided below, followed by a discussion of the other bands in the NSS and other analyses that may be under consideration for reallocation and auction.

Band Excluded from Reallocation and Auction: The Lower 3 GHz Band

For several years, commercial mobile service providers have pressed for reallocation of a portion of the lower 3 GHz band from federal to commercial licensed use.[41] They argue that the band is valuable mid-band spectrum—spectrum conducive to mobile communications. Further, they assert that a portion of the band (i.e., 3.3-3.8 GHz) has been identified globally for mobile 5G use; that in many countries, the band is used for both military and 5G services; and that the United States should reallocate a segment for 5G use.[42]

DOD officials assert that *sharing* the band may be possible but *vacating* the band would disrupt DOD operations essential to national security; would take decades to complete; and would cost

[40] Colman Bazelon, Paroma Sanyal, Yong Paek, *Principles of Spectrum Sharing: Understanding the Value of Shared Spectrum*, September 18, 2023, Executive Summary (pp. 6-7) and pp. 27-28, https://spectrumfuture.com/wp-content/uploads/2025/02/Principles-of-Spectrum-Sharing-Understanding-the-Value-of-Shared-Spectrum.pdf. (Although shared-licensed auctions may raise less money, "shared licensing regimes can generate additive values from multiple shared users of the bands and can save costs by not needing to fully clear or relocate incumbents.")

[41] Doug Brake, "Action Required on Commercial Spectrum to Avoid Isolating the United States," *CTIA Blog*, February 15, 2024, https://www.ctia.org/news/action-required-on-commercial-spectrum-to-avoid-isolating-the-united-states.

[42] CTIA, *Successful Military Radar and 5G Coexistence in the Lower 3 GHz Band: Evidence from Around the World*, 2023, https://api.ctia.org/wp-content/uploads/2023/08/Lower-3-GHz-Report.pdf.

billions of dollars.[43] DOD, using funding from Section 90008 of the IIJA, undertook a feasibility study on making frequencies in the 3.1-3.45 GHz band available for shared federal and nonfederal use. The Emerging Mid-Band Radar Spectrum Sharing (EMBRSS) Feasibility Study was completed in September 2023. It found, among other things, that sharing in the lower 3 GHz band is not feasible *unless* certain regulatory, technological, and resourcing conditions are met.[44] Specifically, it identified a need for a more advanced spectrum sharing system—similar to that used in the 3.55-3.7 GHz band (also called Citizens Broadband Radio Service or CBRS),[45] a model not favored by some in the wireless service industry.[46]

The EMBRSS report found that the sharing approach used in the CBRS band presents a potential model for sharing in the lower 3 GHz band. However, it also noted that the current spectrum sharing technologies and coordination framework would need to be improved and evolved into a large-scale, dynamic spectrum sharing mechanism operated within and by DOD, to allow for near real-time spectrum monitoring and interference mitigation, and would require extensive testing.

The NSS, released in November 2023, pursued calls for the development of a more advanced dynamic spectrum sharing (DSS) system and technologies.[47] In December 2024, DOD's Office of the Chief Information Officer solicited proposals for the Advanced Dynamic Spectrum Sharing Demonstration. DOD is evaluating proposals and has plans to conduct a demonstration of the winning proposal(s) in November 2025.[48]

The *NSS Implementation Plan*, released by NTIA on March 12, 2024, provides a schedule for band studies. It calls for studies of the lower 3 GHz band after the DSS demonstration is complete. The studies include (1) consideration of coexistence (sharing) and moving systems out of the band or to alternate locations; (2) compressing the frequency usage within the band (to free up segments of the band for commercial use); (3) enabling additional access below 3.1 GHz; and (4) any other mechanisms and possibilities with the potential to allow for expanded or more efficient uses of the spectrum. The studies and final report on the lower 3 GHz band are set to be completed in October 2026, after the Dynamic Spectrum Sharing Demonstration is complete.

Congress may leave H.R. 1 as it is, excluding the lower 3 GHz band from consideration during the identification of the 600 megahertz as required under the bill, which could limit proceeds

[43] C. Todd Lopez, "Spectrum Sharing Is Way Ahead to Maintain Economic Dominance, Defense Official Says," *U.S. Department of Defense News*, September 21, 2022, https://www.defense.gov/News/News-Stories/Article/Article/3165774/spectrum-sharing-is-way-ahead-to-maintain-economic-dominance-defense-official-s/.

[44] DOD, *Emerging Mid-Band Radar Spectrum Sharing (EMBRSS) Feasibility Assessment Report* (unclassified), September 2023, pp. ii-iii, https://dodcio.defense.gov/Portals/0/Documents/Library/DoD-EMBRSS-FeasabilityAssessmentRedacted.pdf.

[45] For CBRS, the FCC created a three-tiered access and authorization framework to accommodate shared federal and nonfederal use of the band. Tier 1 is incumbent federal users (primarily, the Navy) that have priority access to the band; Tier 2 is mobile service providers that hold licenses granting them second priority access and use of the band, but who may not cause interference with Tier 1 users; Tier 3 is other users who can access the band but who cannot cause interference with either Tier 1 or Tier 2 users. Access and operations are managed through an automated frequency coordination system, a Spectrum Access System (SAS), typically operated by third-party entities. The SAS may incorporate information from an Environmental Sensing Capability, a sensor network that detects transmissions from DOD radar systems and transmits that information to the SAS, which coordinates spectrum access and use. For more information, see FCC, "3.5 GHz Band Overview," https://www.fcc.gov/wireless/bureau-divisions/mobility-division/35-ghz-band/35-ghz-band-overview.

[46] CTIA, *CBRS: An Unproven Spectrum Sharing Framework*, November 2022, https://www.ctia.org/news/cbrs-an-unproven-spectrum-sharing-framework.

[47] NTIA, *National Spectrum Strategy*, November 2023, pp. 15-16.

[48] Mikayla Easley, "DOD Preparing for First Large-Scale Demonstration of Spectrum-Sharing Tech in 2025," *Defense Scoop*, April 23, 2025, https://defensescoop.com/2025/04/23/dod-large-scale-demonstration-spectrum-sharing-tech-2025-rondeau/.

from spectrum auctions, but could protect federal equities in the band. It could also remove the lower 3 GHz band from exclusion, enabling NTIA and the FCC to consider the band for reallocation and auction, which may increase projections of proceeds, but could jeopardize DOD use and face opposition from some Members.

Some Members have raised concerns about risks associated with reallocating all or a portion of the lower 3 GHz for commercial use, noting it could jeopardize existing and future military systems and capabilities and cost billions of dollars.[49] By law, auction proceeds must cover 110% of federal relocation or sharing costs, and the FCC cannot conclude—and must cancel—the auction if the auction proceeds are less than 110%;[50] this is reiterated in H.R. 1. With studies on the lower 3 GHz band underway, some Members have advocated for further development of DSS mechanisms to enable sharing in the band, and completion of studies and testing, before the band is reallocated from federal to nonfederal or shared federal and nonfederal use.[51]

Band Excluded from Reallocation and Auction: The 6 GHz Band

The 6 GHz band (5.9-7.125 GHz) has some licensed users (e.g., utilities, commercial and private entities, public safety agencies) in the band, who use the frequencies mainly to transmit data between wireless networks and wireline networks where fiber installation may be challenging. Some broadcasting entities use the band to transmit programming from remote locations and special events, and others use the band to provide satellite services.

In 2020, the FCC adopted rules to also permit unlicensed use in the band. The FCC allows low-power access points to enable Wi-Fi connections, as well as standard-power access points that could enable wireless service providers, in coordination with other users, to extend their network coverage and capacity.[52] The band—1,200 megahertz of spectrum—enabled expansive use of connected devices, meaning that entities could access and use the band without a license (for free), provided that their equipment complies with Wi-Fi 6E standards and FCC terms and conditions designed to avoid interference between users. The band is used heavily for Wi-Fi services, and an ecosystem of devices is being designed and developed to operate in the band (e.g., laptops, smartphones, surveillance cameras).

Some wireless service providers have petitioned the FCC for changes to allow for higher-power use in the 6 GHz band or to allow for licensed use of the band to accommodate 5G services.[53] They argue that demand for wireless services is increasing; portions of both bands were

[49] U.S. Senate Committee on Commerce, Science, and Transportation, "Hegseth Dereliction in Defending DoD Spectrum from Land Grab Threatens National Security, Cantwell Warns," press release, May 6, 2025, https://www.commerce.senate.gov/2025/5/hegseth-dereliction-in-defending-dod-spectrum-from-land-grab-threatens-national-security-cantwell-warns; Sen. Mike Rounds, "Protection of Spectrum by Congress Also Protects Trump's Iron Dome from Shortsighted 5G Policy" (op-ed), *Defense Scoop*, February 26, 2025, https://defensescoop.com/2025/02/26/spectrum-5g-policy-congress-trump-dod-iron-dome-senator-mike-rounds/.

[50] 47 U.S.C. §309(j)(16).

[51] U.S. Congress, Senate Commerce, Science, and Transportation Committee, *America Offline? How Spectrum Auction Delays Give China the Edge and Cost Us Jobs*, hearing, 119th Cong., 1st sess., February 19, 2025. (See, for example, statements from Sens. Maria Cantwell and Jacky Rosen.) See also Sens. Mike Rounds and Mazie Hirono, "Rounds-Hirono Spectrum Auction Authority Extension Blocked on Senate Floor, Authority Expires Tonight," press release, March 9, 2023, https://www.rounds.senate.gov/newsroom/press-releases/rounds-hirono-spectrum-auction-authority-extension-blocked-on-senate-floor-authority-expires-tonight.

[52] FCC, "Unlicensed Use of the 6 GHz Band," 85 *Federal Register* 31390, May 26, 2020.

[53] Verizon, *Verizon Petition for Reconsideration Before the Federal Communications Commission in the Matter of Unlicensed Use of the 6 GHz Band (ET Docket No. 18-295) and Expanding Flexible Use in Mid-Band Spectrum Between 3.7 and 24 GHz (GN Docket No. 17-183)*, June 25, 2020, pp. 1-2, https://www.fcc.gov/ecfs/document/106252747102489/1.

designated globally for 5G use; "dozens of nations," including China, have made licensed spectrum in these bands available; and the failure to allocate these bands for mobile use hinders development of equipment by U.S. manufacturers—equipment that could be marketed globally, benefitting U.S. companies and the economy.[54]

Wi-Fi stakeholders (e.g., cable companies, manufacturers, and Big Tech, such as Apple, Facebook, and Google) have opposed these requests to allow for licensed use and have pressed for more spectrum for Wi-Fi.[55] They argue that unlicensed use in the 6 GHz band has spurred innovation and economic growth. The point to a recent study commissioned by a Wi-Fi industry organization that found allocation of the 6 GHz band generated an estimated $870 billion in economic value by 2024; that value is projected to increase to $1.2 trillion by 2027.[56]

In H.R. 1, the 6 GHz band was excluded from possible reallocation and auction. Congress could consider opening the 6 GHz band to reallocation for commercial mobile use, or it could leave the 6 GHz on the exclusion list, protecting unlicensed use.

Potential Bands Under Consideration for Reallocation and Auction

H.R. 1 directs NTIA and the FCC to identify 600 megahertz of spectrum between 1.3 and 10 GHz for exclusive commercial licensed use for mobile broadband services (while also excluding the lower 3 GHz and 6 GHz bands). Several bands in this range may be studied for reallocation, and for auction, as discussed below.

1.3-1.35 GHz Band

NTIA identified this band for potential reallocation in its 2023 *Repurposing Report*. NTIA also noted that federal agencies—including DOD, the Federal Aviation Administration (FAA), and the Department of Homeland Security (DHS)—have significant concerns about the impact of repurposing on surveillance radars.

1.78-1.85 GHz Band

The 1.78-1.85 GHz band was part of a larger band (1.755-1.850 GHz) used previously by more than 20 federal agencies, including DOD, for a variety of uses.[57] In 2015, the lower segment (1.755-1.780 GHz) was auctioned for commercial use, and the federal uses were consolidated into

[54] Verizon, *Comments of Verizon Before the U.S. Department of Commerce National Telecommunications and Information Administration in the Matter of Development of National Spectrum Strategy (Docket No. NTIA-2023-0003)*, April 17, 2023, pp. 17-18, https://www.ntia.doc.gov/sites/default/files/publications/verizon.pdf; AT&T, *Comments of AT&T Services, Inc. on a National Spectrum Strategy*, n.d., pp. 14-15, https://www.ntia.gov/sites/default/files/publications/at_t_0.pdf.

[55] Adrian Potoroaca, "Apple, Google and Others Want the FCC to Approve Unlicensed Use of 6 GHz Wi-Fi Band," *TechSpot*, July 29, 2019, https://www.techspot.com/news/81184-apple-google-others-want-fcc-approve-unlicensed-use.html; and Verizon, *Comments of Verizon Before the U.S. Department of Commerce National Telecommunications and Information Administration in the Matter of Development of National Spectrum Strategy (Docket No. NTIA-2023-0003)*, April 17, 2023, pp. 17-18, https://www.ntia.doc.gov/sites/default/files/publications/verizon.pdf.

[56] Raul Katz et al., *Assessing the Economic Value of Wi-Fi in the United States*, Telecom Advisory Services, LLC, September 2024, pp. 7-8, https://wififorward.org/wp-content/uploads/2024/09/Assessing-the-Economic-Value-of-Wi-Fi.pdf. The report cites value in such things as profits from production of Wi-Fi equipment, Wi-Fi services sold for a fee, savings to consumers for using Wi-Fi, etc.

[57] 5G Americas, *Mid-Band Spectrum Update*, March 2023, p. 6, https://www.5gamericas.org/wp-content/uploads/2023/03/Mid-Band-Spectrum-Update-2023-Id.pdf.

the upper segment (1.780-1.850 GHz). Recently, commercial users identified the upper segment for future study and for potential coexistence of 5G commercial and incumbent federal users.

3.55-3.7 GHz Band

The 3.55-3.7 GHz, also called Citizens Broadband Radio Service (CBRS), is allocated for shared federal and nonfederal use. For this band, the FCC created a three-tiered access and authorization framework to allow federal users priority access and protection from interference, while also allowing some licensed and unlicensed commercial use. Licenses were auctioned in August 2020, yielding about $4.5 billion. Views on usage of this band vary. A commercial wireless industry organization asserted in 2023 that the band is underutilized,[58] while in November 2024, NTIA reported on increased usage and deployment in the band, including in rural areas.[59]

In May 2025, DOD was reported as contemplating a spectrum plan that supported a proposal initiated by AT&T that would move low-power CBRS users to the lower 3 GHz band to share with DOD users.[60] The intent would be to free spectrum in the 3.55-3.7 GHz (CBRS) band for exclusive, high-power 5G mobile use, and auction it to the highest bidder. While mobile network operators support the proposal,[61] other CBRS users reportedly oppose the plan.[62]

Such a plan might meet the requirements of H.R. 1, in that it reallocates a band (CBRS band) within the 1.3-10 GHz range for auction, and does not auction the lower 3 GHz band. However, the proposal could still affect users of the lower 3 GHz band if it requires opening the lower 3 GHz band for sharing to accommodate the displaced low-power CBRS users. Given intensive DOD uses in the 3.1 GHz band, other federal uses in alternative bands, and national security concerns among policymakers, relocation of CBRS users could be challenging.[63]

5.850-5.925 GHz Band

The 5.850-5.925 GHz band, also known as the 5.9 GHz band, was previously allocated for one type of intelligent transportation system (ITS)—dedicated short-range communications (DSRC). In 2020, the FCC designated the lower 45 megahertz of the band for unlicensed use and the upper 30 megahertz for a new ITS technology—cellular vehicle-to-everything (C-V2X) services.[64] While the band is designated for nonfederal ITS use, there is some federal use in the band,

[58] CTIA, "CTIA Comments on NTIA CBRS Data Report," May 31, 2023, https://www.ctia.org/positions/documents/ctia-comments-on-ntia-cbrs-data-report.

[59] NTIA, "NTIA Submits Comments on ITS CBRS Usage Report," November 18, 2024, https://www.ntia.gov/fcc-filing/2024/ntia-submits-comments-its-cbrs-usage-report.

[60] Rhonda Johnson, "Ten Years Later: A New Vision for the 3 GHz Band," *AT&T Connects* (blog), October 9, 2024, https://www.attconnects.com/ten-years-later-a-new-vision-for-the-3-ghz-band/; see also Mike Dano, "DoD Reportedly Enlists in AT&T's Plan to Blow Up CBRS," *Light Reading*, May 1, 2025, https://www.lightreading.com/5g/dod-reportedly-enlists-in-at-t-s-plan-to-blow-up-cbrs-band.

[61] Letter from Thomas C. Power, Sr. Vice President and General Counsel, CTIA, to Charles Cooper, Acting Director, Institute for Telecommunication Sciences, NTIA, May 31, 2023, https://its.ntia.gov/media/yz2dhhjd/ctia-comments-on-ntia-tr-23-567.pdf.

[62] Monica Alleven, "DoD's Latest Spectrum Proposal Is Not Good for CBRS," *Fierce Wireless*, May 1, 2025, https://www.fierce-network.com/wireless/dods-latest-spectrum-proposal-not-looking-good-cbrs.

[63] Monica Alleven, "DoD's Latest Spectrum Proposal Is Not Good for CBRS," *Fierce Wireless*, May 1, 2025, https://www.fierce-network.com/wireless/dods-latest-spectrum-proposal-not-looking-good-cbrs.

[64] CRS In Focus IF11260, *Smart Cars and Trucks: Spectrum Use for Vehicle Safety*, by Bill Canis and Jill C. Gallagher.

primarily the DOD fixed satellite service earth stations that connect to commercial satellite systems that support military operations and data transmissions.[65]

7.125-7.250 GHz Band

The 7.125-7.250 GHz band, just above the 6 GHz unlicensed band, is used heavily by federal agencies, including

- FAA, for microwave communications links used to connect remote long-range aeronautical radionavigation radars to air traffic control centers;
- the U.S. Space Force, for the Defense Satellite Communications System (DSCS) that supports U.S. military communications globally;
- the U.S. Space Force, for its Wideband Global SATCOM Satellite (WGS), which is the backbone of the U.S. military's satellite communications, providing worldwide, flexible, high-capacity communications for U.S. agencies, including DOD, and North Atlantic Treaty Organization (NATO) partners;[66]
- the National Aeronautical and Space Administration (NASA) and National Oceanic Atmospheric Administration (NOAA), for passive sensing of the Earth from space on the Geostationary Operational Environmental Satellite (GOES) system; and
- NASA, for its Deep Space Network.[67]

Some telecommunications industry observers and Members of Congress assert that relocation of federal operations out of the 7-8 GHz band to enable exclusive licensed use would be costly, potentially in the billions of dollars, and would take years.[68] Some commercial wireless groups reportedly recognize the limitations of the band for exclusive use in the near-term, and identify that the band could offer additional capacity and coverage, is recognized internationally as a potential band for 6G technologies, and presents an opportunity for the United States to lead development of 6G technologies and use in the band.[69]

NTIA, through its work on the *NSS Implementation Plan*, is engaged in studies of the band for either (1) shared use or (2) reconfigured use of the band (e.g., compressing federal operations into a segment of the band, freeing up some spectrum for exclusive commercial use).[70] The final report is expected October 2026.

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[65] NTIA, "5650-5925 MHz," February 2017, p. 7, https://www.ntia.gov/files/ntia/publications/compendium/5650.00-5925.00_1Feb2017.pdf.

[66] U.S. Space Force, "Wideband Global SATCOM Satellite," February 2023, https://www.spaceforce.mil/about-us/fact-sheets/article/2197740/wideband-global-satcom-satellite/.

[67] FCC, *A Preliminary View of Spectrum Bands in the 7.125-24 GHz Range; and a Summary of Spectrum Sharing Frameworks*, August 17, 2023, pp. 5-7, https://www.fcc.gov/sites/default/files/SpectrumSharingReportforTAC%20%28updated%29.pdf.

[68] FTI, "The 7/8 GHz Band Poses Tough Repurposing Challenges" (blog post), November 29, 2023, https://freedomtechnologiesinc.com/the-7-8-ghz-band-poses-tough-repurposing-challenges/; U.S. Congress, Senate Commerce, Science, and Transportation Committee, *America Offline? How Spectrum Auction Delays Give China the Edge and Cost Us Jobs*, hearing, 119th Cong., 1st sess., February 19, 2025. (See opening statement from Sen. Maria Cantwell.)

[69] Viet Nguyen, "Unlocking the Power of the 7-8 GHz Spectrum: A 'Golden Band of 6G Innovation" (blog post), 5G Americas, October 2024, https://www.5gamericas.org/unlocking-the-power-of-the-7-8-ghz-spectrum-a-golden-band-of-6g-innovation/.

[70] NTIA, *National Spectrum Strategy Implementation Plan*, March 2024, pp. A-9, A-10.

In assessing spectrum for future auctions, the FCC may assess current spectrum allocations for both commercial and federal use. As NTIA manages federal spectrum use, some Members have questioned the extent of federal use and have called for a federal inventory.[71] In terms of commercial use, the FCC determines what spectrum is "suitable and available" for commercial mobile service, primarily to assist in its review of certain transactions involving spectrum (e.g., mergers and acquisitions, spectrum swaps) and spectrum acquired through auctions, to ensure the transactions are in the public interest and do not result in excessive concentration of spectrum holdings with one provider. Such analysis by the FCC may further inform spectrum decisions. As demand for spectrum increases, NTIA and the FCC are tasked with identifying optimal spectrum for each set of users, taking into account an evolving technological and international environment and pressure to make spectrum available quickly for new commercial uses to retain U.S. competitiveness in the global telecommunications market.

To meet the directives in H.R. 1, NTIA and the FCC may consider bands named in the NSS, bands reportedly under consideration by DOD, industry recommendations, and global designations to identify the 600 megahertz for exclusive licensed use. Alternatively, Congress could itself select the bands to reallocate and auction, either through statute or report language. Direct selection of the bands may speed spectrum reallocation, but would remove NTIA and FCC agency expertise from decisions on identification, reallocation, and timing.

Spectrum Auction Authority and Proceeds

H.R. 1 would reinstate the FCC's general spectrum auction authority through September 30, 2034. It also would amend 47 U.S.C. 309(j)(11), striking language that applies the expiration date to its authority to *grant licenses* after competitive bidding (i.e., auctions), and apply the expiration date to its authority to *auction spectrum* instead.[72]

The Middle Class Tax Relief and Job Creation Act of 2012 (P.L. 112-96, Title VI) extended the FCC's general auction authority for 10 years. After several short-term extensions, the FCC's spectrum auction authority expired on March 9, 2023.[73] In P.L. 112-96, Congress named five bands for reallocation, creating certainty for mobile service providers on future spectrum auctions and timelines. CBO estimated offsetting receipts from those auctions at $24.5 billion.

H.R. 1 would extend the FCC spectrum auction authority for nine years and direct NTIA and the FCC to identify 600 megahertz of unspecified bands for exclusive, licensed commercial use. Auction of spectrum for exclusive, licensed use typically generates more in proceeds than auctions for shared federal and nonfederal use;[74] however, not knowing which bands are to be auctioned may make estimating proceeds difficult. In its cost estimate, CBO estimated proceeds from spectrum provisions in H.R. 1 at $88 billion.[75]

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[71] U.S. Congress, Senate Commerce, Science, and Transportation Committee, *America Offline? How Spectrum Auction Delays Give China the Edge and Cost Us Jobs*, hearing, 119th Cong., 1st sess., February 19, 2025. (See, for example, statements from Sen. Roger Wicker.)

[72] This clarification may be in response to the situation in 2023, where the FCC auction authority expired prior to it granting licenses after the 2.5 GHz auction was complete. This circumstance raised questions as to whether the FCC could legally grant those licenses. In light of the uncertainty, Congress passed the 5G SALE Act (P.L. 118-2787), which gave the FCC temporary authority to grant the 2.5 GHz licenses.

[73] CRS Report R47578, *The Federal Communications Commission's Spectrum Auction Authority: History and Options for Reinstatement*, by Patricia Moloney Figliola and Jill C. Gallagher.

[74] See outcomes from FCC auctions at FCC, "Auctions," https://www.fcc.gov/auctions.

[75] Congressional Budget Office (CBO), "Table 4. Title IV, House Committee on Energy and Commerce," in *Estimated*
(continued...)

While CBO has provided a bottom-line estimate of spectrum provisions in H.R. 1, its detailed estimate is not available. As in previous cost estimates, CBO's estimate may include an amount attributed to FCC regaining its auction authority *and* any amounts from future auction proceeds.[76] The CBO estimate may or may not include certain considerations. Some Members have noted that costs to relocate federal users may not be included, which could affect final estimates.[77]

By law, proceeds from spectrum auctions are to be used to cover FCC costs of developing and conducting the auction[78] and federal agency relocation and sharing costs associated with the auction(s);[79] remaining funds are to be deposited into the general fund of the U.S. Treasury and be used to reduce the deficit,[80] unless otherwise specified by Congress. In the past, some spectrum acts allocated a portion of spectrum auction proceeds for specific programs (see, for example, P.L. 112-96, Title VI). Recent spectrum bills reflected the same approach—allocating proceeds to spectrum sharing research, next generation 911 improvements, and broadband deployment programs, for example.[81] H.R. 1 does not include allocation of proceeds to additional programs or initiatives. H.R. 1 specifies that auction proceeds are to cover 110% of federal relocation or sharing costs and that nothing relieves the FCC from requirements in 47 U.S.C. §309(j)(16)(B), which states that the FCC cannot conclude, and must cancel, the auction if the auction proceeds are less than 110% of the federal relocation or sharing costs.[82]

Spectrum Dispute Resolution

The 2022 NTIA-FCC MOU details a coordination process for identifying spectrum for reallocation. It includes a dispute resolution process, stating that if concerns cannot be resolved by staff, the issue may be referred to the agency heads for consideration before final action.[83]

Further, in the 2023 *Memorandum on Modernizing United States Spectrum Policy and Establishing a National Spectrum Strategy*, President Biden specified a spectrum dispute resolution process.[84] Any interagency disputes would be elevated to the Assistant to the President for National Security Affairs and the Assistant to the President for Economic Policy, who, in consultation with the Director of OSTP and the National Space Council, would resolve such

Budgetary Effects of a Bill to Provide for Reconciliation Pursuant to Title II of H.Con.Res. 14, the One Big Beautiful Bill Act: Cost Estimate as Ordered Reported by the House Committee on the Budget on May 18, 2025, May 20, 2025, https://www.cbo.gov/publication/61420.

[76] For example, for H.R. 3565, a comprehensive spectrum bill that was proposed in the 118th Congress but was not enacted, CBO estimated that—with the extension of the FCC's broad auction authority proposed in the bill, and assuming that, with its spectrum auction authority restored, the FCC would hold at least one auction before the expiration date, and acknowledging that CBO could not predict the bands that would be auctioned—offsetting receipts would be approximately $10.6 billion over the FY2023-FY2033 period.

[77] Politico Security Summit, "Full Interview with Sen. Deb Fischer," May 15, 2025, https://www.politico.com/video/2025/05/15/full-interview-with-sen-deb-fischer-r-neb-politico-security-summit-1609172.

[78] 47 U.S.C. §309(j)(8)(B).

[79] 47 U.S.C. §309(j)(3)(F).

[80] 47 U.S.C. §309(j)(8).

[81] For example, see H.R. 7624 in the 117th Congress and H.R. 3565 in the 118th Congress.

[82] 47 U.S.C. §309(j)(16).

[83] "Memorandum of Understanding Between the Federal Communications Commission and the National Telecommunications and Information Administration," August 1, 2022, Section IV (7).

[84] President Joseph R. Biden, Jr., *Memorandum on Modernizing United States Spectrum Policy and Establishing a National Spectrum Strategy*, November 13, 2023, https://bidenwhitehouse.archives.gov/briefing-room/presidential-actions/2023/11/13/memorandum-on-modernizing-united-states-spectrum-policy-and-establishing-a-national-spectrum-strategy/.

disputes through the National Security Council System.[85] In addition, the *NSS Implementation Plan*, released under the Biden Administration, stipulated that the Office of the Joint Chiefs of Staff may, if it so chooses, provide a written National Security Risk Assessment to the President through the Secretary of Defense before any decision is made to repurpose a band.

On January 20, 2025, President Donald J. Trump revoked NSM-2 and replaced it with the National Security Presidential Memorandum (NSPM-1), which directs the Assistant to the President for National Security Affairs to help the President resolve major conflicts among departments and agencies with regard to national security.[86] In late May 2025, media reports indicated that the White House had plans to reduce the National Security Council (NSC) staff.[87] The extent to which, if at all, this might affect the ability of the NSC to review and resolve complex spectrum decisions is unknown.

Conclusion

H.R. 1 has passed the House. Some Senators may be interested in identifying additional bands of spectrum for reallocation and auction.[88] Others have supported the exclusion of the lower 3 GHz band in the bill and have pressed for protection of other bands used heavily by federal agencies (e.g., the 7-8 GHz band).[89] Some Senators have expressed concerns about the reallocation of bands used by DOD for exclusive commercial use, citing national security impacts, and have pressed for additional protections in this auction and in future auctions, and greater DOD involvement in reallocation decisions.[90] Some Senators stress the need for funding to enable research and development of spectrum sharing approaches and technologies to maximize spectrum use.[91] While these governance, coordination, and technology issues continue to surface

[85] The National Security Council System was established by President Biden through National Security Memorandum-2 (NSM-2). President Joseph R. Biden, Jr., *Memorandum of Renewing the National Security Council System*, February 4, 2021, https://bidenwhitehouse.archives.gov/briefing-room/statements-releases/2021/02/04/memorandum-renewing-the-national-security-council-system/.

[86] President Donald J. Trump, *National Security Presidential Memorandum on Organization of the National Security Council and Subcommittees*, January 20, 2025, https://www.presidency.ucsb.edu/documents/national-security-presidential-memorandum-organization-the-national-security-council-and.

[87] Robbie Gramer et al. "Trump Administration to Shrink the National Security Council," *Politico*, May 23, 2025, https://www.politico.com/news/2025/05/23/trump-national-security-council-00368787; U.S. Congress, Senate Commerce, Science, and Transportation Committee, *America Offline? How Spectrum Auction Delays Give China the Edge and Cost Us Jobs*, hearing, 119th Cong., 1st sess., February 19, 2025. (See comments of Matt Pearl on expertise and time needed for the National Security Council to review and resolve spectrum disputes.)

[88] For example, Sen. Ted Cruz introduced a bill in the 118th Congress (S. 3909) that calls for identification and reallocation of at least 1,250 megahertz of spectrum for licensed use. A similar proposal was introduced in the House (H.R. 651) in the 119th Congress. See also U.S. Congress, Senate Commerce, Science, and Transportation Committee, *America Offline? How Spectrum Auction Delays Give China the Edge and Cost Us Jobs*, hearing, 119th Cong., 1st sess., February 19, 2025.

[89] John Hendel, "Senators Warming to Spectrum Deal in GOP Megabill," *Politico*, April 29, 2025, https://www.politico.com/live-updates/2025/04/29/congress/senate-eyes-spectrum-deal-00317429.

[90] Sen. Deb Fischer, "Fischer Questions Experts on National Security Risks and U.S. Spectrum Policy," press release, February 19, 2025, https://www.fischer.senate.gov/public/index.cfm/2025/2/fischer-questions-experts-on-national-security-risks-and-u-s-spectrum-policy; U.S. Senate Committee on Commerce, Science, and Transportation, "House GOP Spectrum Giveaway Would Punch a Gaping Hole in U.S. National Defenses, Cantwell Warns," press release, May 21, 2025, https://www.commerce.senate.gov/2025/5/house-gop-spectrum-giveaway-would-punch-a-gaping-hole-in-u-s-national-defenses-cantwell-warns; Alexander Bolton et al., "These Are the changes Senate Republicans Are Eyeing for the GOP's 'Big, Beautiful Bill,'" *The Hill*, May 23, 2025, https://thehill.com/homenews/senate/5316382-these-are-the-changes-senate-republicans-are-eyeing-to-the-gops-big-beautiful-bill/.

[91] Sen. Deb Fischer, "Fischer Questions Experts on National Security Risks and U.S. Spectrum Policy," press release, February 19, 2025.

in hearings and legislative proposals, H.R. 1 primarily addresses the identification of bands for future reallocation and auction and restoration of spectrum auction authority.

Appendix. Spectrum Suitable and Available for Commercial Mobile Service

The FCC identifies spectrum that is "suitable and available" for commercial mobile service, primarily to assist in its review of certain transactions involving spectrum (e.g., mergers and acquisitions, spectrum swaps) and spectrum acquired through auctions, to ensure the transactions are in the public interest and do not result in excessive concentration of spectrum holdings with one provider.[92] The FCC evaluates an entity's commercial mobile spectrum holdings against all "suitable and available" spectrum in a band (or set of bands) to assess whether the entity would, as a result of the transaction, hold an excessive amount of spectrum.[93] According to the FCC,

> Suitability is determined by whether the spectrum is capable of supporting mobile service given its physical properties and the state of equipment technology, whether the spectrum is [already] licensed with a mobile allocation and corresponding service rules, and whether the spectrum is committed to another use that effectively precludes its uses for mobile services. Spectrum is considered "available" if it is "fairly certain that it will meet the criteria for suitable spectrum in the near term [or within two years], an assessment that can be made at the time the spectrum is licensed or at later times after changes in technology or regulation that affect the consideration."[94]

Table 1 provides a list of bands deemed by the FCC as "suitable and available" for commercial mobile service.[95] **Table 1** identifies the individual bands allocated for commercial mobile service; groups the bands into low-, mid-, and high-band spectrum; provides the bandwidth (in megahertz) for individual bands; and provides the total bandwidths of low-, mid-, and high-band spectrum allocated by the FCC for commercial mobile service.

[92] FCC, "Policies Regarding Mobile Spectrum Holdings," June 16, 2019, https://www.fcc.gov/wireless/bureau-divisions/competition-infrastructure-policy-division/policies-regarding-mobile. The FCC is responsible for determining whether certain applications and transactions would serve the public interest, convenience, and necessity (47 U.S.C. §§303, 309(j)(3)). To ensure transactions (e.g., mergers and acquisitions) and auctions are in the public interest, the FCC has established a process to review transactions to avoid aggregation of spectrum by one provider in a particular geographic market, to promote competition, and to improve services.

[93] The FCC sets percentages (typically one-third of suitable and available spectrum in a band or across a set of bands) that serve as a "screen"—the point at which transactions would undergo in-depth review and competitive analysis. The FCC has also set, for some auctions, spectrum limits to inform private companies of limits on spectrum holdings before bidding.

[94] FCC, *In the Matter of Policies Regarding Mobile Spectrum Holdings, Expanding the Economic and Innovation Opportunities of Spectrum Through Incentive Auctions*, May 15, 2014, p. 37, https://docs.fcc.gov/public/attachments/FCC-14-63A1.pdf.

[95] FCC, *In the Matter of T-Mobile License, LLC*, February 27, 2024, pp. 14, 16 (fn. 128), https://docs.fcc.gov/public/attachments/DA-24-171A1.pdf.

Table 1. Spectrum Suitable and Available for Mobile Service

Band[a]	Frequencies[b]	Suitable and Available Spectrum[c]
Low-Band (Below 1 GHz) Spectrum		
600 MHz	614-698 MHz	70 megahertz
700 MHz	698-806 MHz	70 megahertz
Cellular	824-849 MHz; 869-894 MHz	50 megahertz
SMR	800/900 MHz	14 megahertz
Total		204 megahertz
Mid-Band (1-6 GHz) Spectrum		
AWS-3	1695-1710 MHz; 1755-1780 MHz; 2155-2180 MHz	65 megahertz
PCS	1850-1990 MHz	120 megahertz
PCS G Block	1910-1915 MHz; 1990-1995 MHz	10 megahertz
PCS H Block	1915-1920 MHz; 1995-2000 MHz	10 megahertz
AWS-1	1710-1755 MHz; 2110-2155 MHz	90 megahertz
AWS-4	2000-2020 MHz; 2180-2200 MHz	40 megahertz
WCS	2305-2320 MHz; 2345-2360 MHz	20 megahertz
BRS	2496-2690 MHz	67.5 megahertz
EBS	2496-2690 MHz	117.5 megahertz
3.45 GHz	3.45-3.55 GHz	100 megahertz
CBRS	3.55-3.65 GHz	0 megahertz[d]
C-Band	3.7-3.98 GHz	280 megahertz
Total		920 megahertz
High-Band or Millimeter Wave (24 GHz+) Spectrum		
24 GHz	24.25-24.45 GHz; 24.75-25.25 GHz	700 megahertz
28 GHz	27.500-27.925 GHz; 27.925-28.350 GHz	850 megahertz
37 GHz	37.6-38.6 GHz	1,000 megahertz
39 GHz	38.6-40.0 GHz	1,400 megahertz
47 GHz	47.2-48.2 GHz	1,000 megahertz
Total		4,950 megahertz

Source: CRS based on Federal Communications Commission (FCC) notices; see also FCC, *In the Matter of T-Mobile License, LLC*, February 27, 2024, pp. 14, 16 (fn. 128), https://docs.fcc.gov/public/attachments/DA-24-171A1.pdf.

Notes: SMR = Specialized Mobile Radio; AWS = Advanced Wireless Services; PCS = Personal Communication Services; WCS = Wireless Communication Service; BRS = Broadband Radio Service; EBS = Educational Broadband Service; CBRS = Citizens Broadband Radio Service.

a. Bands have been named by different entities over time, including the International Telecommunications Union (ITU), an agency of the United Nations that facilitates global communications; the FCC; the Institute of Electrical and Electronics Engineers (IEEE), a professional organization and standards-making body; U.S. and foreign military agencies; and the North Atlantic Treaty Organization (NATO). Industry analysts report that bands were often named by the engineers or scientists that pioneered their use. Some bands were named for a reason (e.g., C-band was a "compromise" band, providing medium-range coverage where only long- and short-range satellite coverage existed); the origin of other band names is unknown. Band names used in this memorandum are those used by the FCC. For more information, see "Why Are Frequency Band Designations So Confusing?," *Military Aerospace Electronics*, February 19, 2019, https://www.militaryaerospace.com/directory/blog/14059687/why-are-frequency-band-designations-so-confusing. In terms of "screens," the FCC sets percentages (typically one-third of suitable and available spectrum in a band or across a set of bands) that serve as a trigger or "screen"—the point at which transactions undergo in-depth review and competitive analysis to avoid aggregation of spectrum by one provider in a particular geographic market, to promote competition, and to improve services.

b. These are the frequencies in the band deemed suitable and available for mobile service. The abbreviation "MHz" (for megahertz) or "GHz" (for gigahertz) is used to indicate a specific frequency or range of frequencies in the band.

c. This shows the bandwidth—the size of the frequency band. The term "megahertz" is spelled out when it refers to bandwidth. In some cases, the FCC provides an exact number for the total suitable and available spectrum; sometimes it rounds that number upward. Thus, suitable and available amounts listed in this table are approximate.

d. The CBRS band has three tiers of users. Tier I is federal users, who have primary access; Tier II is commercial mobile service providers with Priority Access Licenses, who can use the band but must yield to Tier I users; and Tier III is general authorized access users, who can use the band as long as they do not interfere with Tier I and Tier II users. The FCC counts the band as mobile spectrum, but because of the band's shared nature, the FCC does not attribute a specific bandwidth.

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